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SUPPLIER PRODUCT SAFETY GUIDE

An Introduction to the Snap-on World of Product Safety

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QUICK GUIDE TO PRODUCT SAFETY

Product Safety involves the identification, evaluation and control of hazards on products that have a potential for causing injury to users and bystanders.

*Make **Product Safety** a priority in your company!*

Those responsible for PRODUCT DESIGN and DEVELOPMENT need to:

1. **IDENTIFY THE POTENTIAL HAZARDS** of your product based on reasonably foreseeable patterns of customer use and misuse.
2. **DESIGN HAZARDS OUT** of the product to eliminate or minimize those hazards during customer use and misuse.
3. **GUARD AGAINST HAZARDS** if you cannot reasonably eliminate them. Minimize the hazard by using safety devices such as a **guard, enclosure or other physical safeguard** to protect the user.
4. **PROVIDE SAFETY INSTRUCTIONS OR MESSAGES** to the user for hazards inherent to the nature of the product or hazards that cannot be eliminated by the two previous steps. **Safety instructions or messages** are written and designed according to ANSI Z535.4 (Product Safety Signs and Messages) and this guide.

There is no such thing as a totally risk free product. However, careful consideration of these steps will enable you to develop reasonably safe products.

*Find out how to **identify** and **take action** on product hazards in this*
Snap-on Supplier Product Safety Guide!

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HOW TO USE THIS BOOKLET
This booklet, **Snap-on Supplier Product Safety Guide**, is designed to help assure that products you supply to Snap-on as merchandise for resale meet standards for safety. Snap-on has established policies, standards and practices that provide:

- Safe product designs.
- Protective devices and/or safety messages used as needed.
- Concise safety messages that conform to standards.
- Safety messages that are sized, colored, and placed to yield effective visibility.

The policies and standards adopted by Snap-on to design and produce the safest possible World-class products are summarized here for your use. This document acquaints your company with Snap-on Corporate Safety Standards, ANSI standards, UL Standards, other Snap-on standards and other industry standards whenever appropriate. Product safety messages are intended to comply with ANSI Z535.4 (Product Safety Signs and Messages) and this booklet is no substitute for knowledge of that or any standard. The guidelines provided in this booklet apply to safety messages for the prevention of personal injury, not damage to property.

As a responsible supplier to Snap-on, you are expected to:

1. Familiarize yourself with the **Safety Terminology**.
2. Design your product using **Industry Standards (Appendix B)** and proven **Principles of Safe Design**.
3. Perform a thorough **Product Hazard Review** of any product you currently or plan to offer to Snap-on for resale.
4. Prepare needed **Safety Messages** using the **Safety Message Guidelines** in this booklet.
5. Use **Safety Messages** in the entire product offering (i.e. product marking, product labels, user instruction manuals, product literature, packaging).
6. Use **Your Snap-on Safety Contacts** if you have safety questions that are not answered in this booklet.

Your Snap-on Safety Contacts

Snap-on has safety contacts located at Snap-on and subsidiary companies. These individuals should be contacted for safety message review and approval. **Your merchandise buyer is your first line safety contact.** For product-specific assistance, your buyer may refer you to another product safety contact. You are responsible for using these resources for assistance when making product safety decisions.

SAFETY TERMINOLOGY

The following terms are used throughout the **Supplier Product Safety Guide**.

Hazard -- A source of potential injury to a person.

> **Imminently Hazardous** -- A hazard with a high degree of certainty or urgency if the situation is not avoided.
>
> **Potentially Hazardous** -- A hazard that has a low to moderate degree of certainty or urgency if the situation is unchanged, or a high degree if the situation changes.

Label -- Any sign, embossing, decal, tag, graphic element and/or written device used to convey information.

Message Panel -- The portion of a safety sign/label or copy containing the word message.

Panel -- A portion of a safety sign/label containing words or graphics. See Message Panel, Symbol/ Pictorial Panel and Signal Word Panel.

Product Offering -- Describes the product received by a customer which may include the product, user manual, other literature, packaging, hardware, accessories, warranties and similar items.

Safety Message -- A visual alerting device in the form of a decal, label, placard, embossing, stamping, etching or other process of marking or copy which informs the user, bystander or service personnel of the nature and degree of the potential hazard, how to avoid the hazard, and consequences of not avoiding the hazard.

Signal Word -- The word that designates the degree or level of hazard seriousness. **DANGER**, **WARNING** and **CAUTION** are the signal words for product safety messages.

> **Danger** -- Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury to the operator or bystanders.
>
> **Warning** -- Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury to the operator or bystanders.
>
> **Caution** -- Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury to the operator or bystanders.

Signal Word Panel -- The portion of a safety message containing the signal word and safety alert symbol.

Symbol/Pictorial Panel -- The graphic portion of a safety message containing the pictorial and/or symbol.

User Manual -- The book of operating instructions which accompanies a product and informs the end user about operating parameters, including safety. While User Manual is the term used in this booklet, requirements also apply to Instruction Manuals, Operating Manuals, Instruction Sheets or other written material that serves this purpose.

PRODUCT HAZARD REVIEW

Product Safety involves the elimination or control of hazards on products that have a potential for causing injury to users and bystanders. This booklet gives a basic understanding of how to identify and take action on hazards. For a more complete treatment of the subject, there are numerous safety engineering texts and courses available. Encourage their use in your company.

1. The first step in this process is to **identify the hazard**. Take a thorough look at reasonably foreseeable patterns of customer use and misuse of your product. A list is provided at the end of this section, **Potential Hazards for Many Product Types**. Consider common human mistakes and limitations. With your design team, determine reasonable potential hazards and **list the hazards you identify**. Some forms of energy hazards to consider are:

⇒ mechanical	⇒ chemical - reactive	⇒ thermal
⇒ electrical	⇒ radiant	⇒ acoustic
⇒ chemical -corrosive, toxic	⇒ potential (stored)	⇒ kinetic (impact)

2. Eliminate those hazards on your list that you can by **designing them out** of the product. Apply this important principle to as many hazards on your list as you can. If your product contains a potential hazard, consider altering the design to eliminate the hazard by a change in material, design or process so the hazard is gone. Thorough and creative application of sound engineering principles will aid the redesign process. It cannot be overemphasized that safety is built into the product at the design stage.

3. If you cannot entirely eliminate a hazard, provide a **guard, enclosure or other physical safeguard** to protect the customer. A well-designed guard is a fixed and permanent part of the product. If your product contains a potential hazard that is central to the product function, it may be making it unworkable or undesirable to design it out. If this is the case, add a guard to protect the user from the hazard during use or reasonable misuse of the product.

4. For hazards that are inherent to the nature of the product and cannot be eliminated by the two previous steps, **provide safety instructions or messages** to the customer. These may include safety messages on the product, in packaging or user manuals. Safety instructions/messages could also be expressed through training, alarms, beepers, flashers, recordings, indicator lights. In this booklet, information will primarily be provided about product Safety Messages. Do not see this as an indication that other types of message methods are not acceptable. However, remember *Snap-on expects that at a minimum identified hazards will be addressed by appropriate product safety instructions / messages that are prepared by using this guide, ANSI Z535.4 and applicable industry standards*.

5. To write and design a Safety Message for product, packaging and user manual, use the information in **Determine Contents of Product Safety Messages** and **Design Product Safety Messages**.

Potential Hazards for Many Product Types

The following table lists usual hazards by product type. *Remember that no list includes all potential hazards. There is no substitute for a thorough* **Product Hazard Review**.

Power Tools	Tool Storage	Hand Tools	Electrical
Vibration Noise Flying Objects Oil Mist/Exhaust Moving Components	Tipping Lifting Pulling Unit	Overload Flying Objects Sparks/Explosion	Shock Burns Sparks/Explosion Moving Components Ultraviolet Rays (Welding) High Temperature Flying Particles
Lift Equipment	**Jacks**	**Air Conditioning**	**Engine Cooling**
Instability Overload Falling Particles Being Pinned	Instability Pinching Collapsing	Refrigerant Leakage Shock High Pressure Oil Separator Bowl Service Entanglement Exhaust Fumes	High Temperature Pressure Entanglement Exhaust Fumes
Brakes	**Fuel**	**Welding**	**Cleaning**
Flying Parts Entanglement Shock Pressurized Fluid Dust	Fire Pressurized Fluid	Ultraviolet Rays Fire Hot Metal Shock Fumes Intense Light	Pressurized Fluid Fire
Sandblasting	**Insulated Tools**	**Knives**	**Creepers**
Flying Particles Pressurized Material	Electric Shock Flying Objects Overload	Sharp Edges Flying Objects	Instability
Roll Carts	**Sanding**	**Waste Oil Container**	**Air Supply**
Overload Pulling Unit	Tool Breakage Flying Particles	Heavy Load Fuel	Pressurized Air Flying Particles Explosion Contaminated Air
Riveting & Door Tools	**Wheel Alignment**	**Frame Straightening**	**Impact Tools**
Flying Chips	Overload	Overload	Flying Particles Tool Breakage
Pressure Gauge Sets		**Grinders, Grinding Wheels**	
Pressurized Fluid, Air, Gas Fire Explosion Fumes		Flying Particles Tool Breakage	

DETERMINE CONTENTS OF PRODUCT SAFETY MESSAGES

WHAT SHOULD THE SAFETY MESSAGE SAY?

1. Assign Signal Word Based on the Level of Hazard Seriousness

Using the definitions in Safety Terminology and below, determine if the hazard represents a **Danger, Warning or Caution** situation. This is the **Signal Word** and alerts a customer, not only to the presence of a hazard, but to the level of potential hazard seriousness.

DANGER indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury to the user or bystanders. The choice of the signal word **DANGER** is limited to the most extreme situations. Possible examples of **DANGER** situations may include (assess each hazard situation individually):

- Exposure to high electric currents or voltages
- High liquid or compressed gas pressures
- High temperatures in the presence of flammable materials
- Toxic, poisonous or otherwise unhealthful chemicals, including gases, liquids and dust particulates

WARNING indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury to the user or bystanders. **WARNING** is often the most frequently-used signal word, but its usage must be based on this definition. The signal word **WARNING** may be chosen whenever situations warrant. Examples of **WARNING** situations may include (assess each hazard situation individually):

- Situations when WEAR EYE PROTECTION is required.
- Moderate noise levels for prolonged periods or high noise levels for brief periods
- Situations when objects could tip over.

CAUTION indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury to the user or bystanders. The signal word **CAUTION** shall be chosen for those safety messages when the **DANGER** and **WARNING** signal words do not apply. Examples of **CAUTION** situations may include (assess each hazard situation individually):

- Situation where unit under test may be misdiagnosed leading to incorrect or improper repair.
- Situations where the possible hazard is a minor abrasion or cut (i.e. knuckle-scraping from tool slippage, fingers pinched in a battery clip).

2. Write a Safety Message Which Answers Three Questions

Identify the hazard in clear common language. Identify how to avoid the hazard and the possible consequences of not avoiding the hazard. These three become the three-part safety message. Answer the questions:

- What is the hazard?
- **How is the hazard avoided?**
- *What are the possible consequences of not avoiding the hazard?*

The word message should be concise, easily read and understood. Write safety messages with active construction, which usually places the verb or action word first. Most hazards are best described with the words “Risk of (fire, explosion, etc.).” Examples of concise, active construction follow:

DO SAY:	***RATHER THAN:***
Wear safety goggles.	*It is recommended that when the tool is used, eye protection should be worn.*
Risk of electric shock.	*Electric shock is possible if this equipment is used unsafely.*
Risk of fire.	*Material may be flammable under certain conditions.*
Inspect, clean and lubricate tool.	*Tools that are not properly maintained may not perform correctly and may slip or break during use creating an unsafe condition.*

3. Choose The Corresponding Safety Symbol/Pictorial

Use symbols and pictorials whenever possible and meaningful. Details and examples of common approved safety symbols and pictorial representations of product safety messages are shown in the **Recommended Safety Symbols and Common Pictorials** section, which follows. Choose a pictorial from an existing industry standard that corresponds to your message or design your own using the information in that section. Pictorials may depict the hazard, the avoidance or the consequence. Keep pictorials simple.

4. Determine Where The Safety Message Will Be Placed

Locations for the safety message may include:

- On the Product,
- On the Product Packaging, and/or
- In the User's Manual.

Do not change safety message wording from one location to another. Whenever possible, use the complete message in each location. If, due to insufficient space on the Product (or other location), the entire three-part message cannot be used, Snap-on expects the **Signal Word** and **How to avoid the hazard** be utilized, at a minimum, whenever possible. Packaging and User manual locations generally should contain the entire message.

Place the Safety Message on the Product in a conspicuous place where it is visible, legible, and considers where the hazard is most likely to occur. Mark the message on the product in a method that is permanent (stamping, silk-screen) or not removable (permanent label). If permanence or durability may be an issue over product life, instruct the customer how to obtain replacement safety message label(s) and/or provide an additional message to hang on the wall.

The recommended format for User's Manuals is:

- List all messages in the beginning of the Manual in a separate section titled "Safety Information" before the table of contents. List in descending order of seriousness of hazard. Include here the full three-part message.
- List individual message(s) at the place in the manual where the hazard first occurs OR at the beginning of a section that contains the hazard. An example of when this second approach is preferred is when the "How to avoid" behavior (e.g. putting on safety apparel) is part of preparation for a procedure. Within the manual, the message may be shortened using the criteria above for Product marking when the presence of numerous or long messages interferes with the use of the User Manual.

Multiple messages are allowed as long as care is taken to prevent them from blending together and they are arranged in a meaningful order. This will usually be from highest urgency to lowest, unless another order conveys a safer message. The signal word of the highest applicable urgency shall be used.

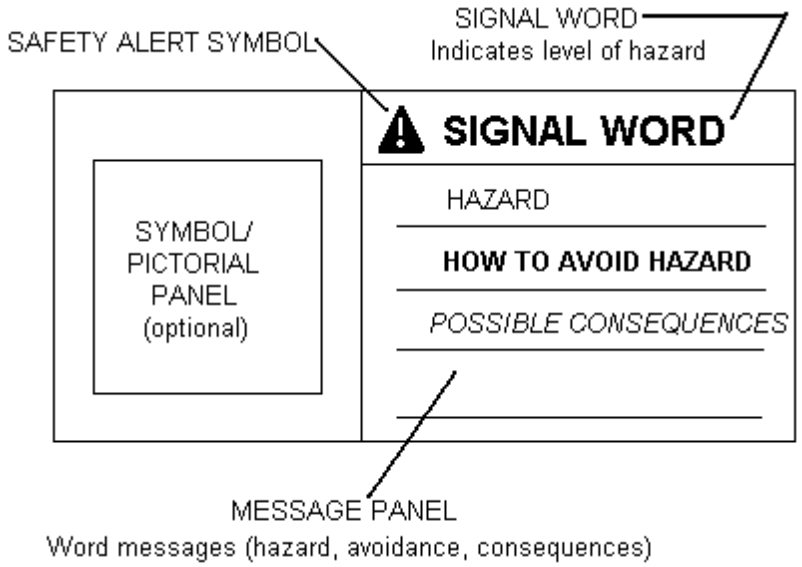
DESIGN PRODUCT SAFETY MESSAGES

HOW SHOULD THE SAFETY MESSAGE LOOK?

When the message contents and locations are determined, design the message using a **Three Part Panel Format** or other approved format and the following information regarding layout, color, font and pictorials. Refer to ANSI Z535.4 for additional information if needed. Refer to ANSI Z535.1 for specifics on safety colors. All parts of the message should be clear and readable, preferably in a sans serif font.

The Three Part Panel Format

The approved panel for product safety messages contains three parts: the **Signal Word Panel**, the **Three-Part Message Panel**, and the optional **Symbol/Pictorial Panel**, which are illustrated here. Detailed explanations and requirements follow.



The Signal Word Panel

The **Signal Word Pane**l appears at the top of the message format. It consists of the **Safety Alert Triangle** followed by the chosen **Signal Word** (see **Assign Signal Word** in previous section). Use upper case sans serif lettering only for signal words. For applications where color is used, use the color corresponding to the level specified here for the **Signal Word Pane**l portion of the message. For black and white applications, use safety black text on a safety white background or safety white text on a safety black background.

SIGNAL WORD/ SYMBOL AND DESIGN REQUIREMENTS

Use *safety white* text on *safety red* background.

Use *safety black* text on *safety orange* background.

Use *safety black* text on *safety yellow* background.

The safety alert symbol precedes the signal word. The safety alert symbol base lies on the same horizontal line as the signal word lettering base. * The symbol height equals or slightly exceeds the signal word height.

Snap-on has devised a unique approach to color use with the safety alert symbol. As illustrated here, Snap-on matches the fill color of the safety alert symbol to the background color for the corresponding signal word. (Not per ANSI Z535.)

* Limitations of word processing software may hinder the common baseline for the graphic symbol and the text for applications such as this booklet. In those instances, line them up as closely as possible.

The solid triangle portion of the safety alert symbol should be the same color as the signal word lettering, and the exclamation mark in the symbol should be the same color as the signal word panel background.

The Message Panel

This area contains the word message that identifies the hazard in three parts (see **Write a Safety Message Which Answers Three Questions** in the previous section). Snap-on has chosen the following font styles to signify each part of the message (not specified by ANSI Z535.).

What is the hazard? (State this in Normal font)

How is the hazard avoided? (State this in **Bold** font)

What are the possible consequences of not avoiding the hazard? (State this in *Italic* font)

Use sans serif lettering for the contents of the message panel, as appropriate. Use either safety black text on safety white background or safety white text on safety black background. Font size choice must be large enough to be clearly readable by the operator in their reasonable environment of use. Reference ANSI Z535.4.

The Symbol / Pictorial Panel

The pictorial panel may have a black pictorial on a white background. When color is used, safety colors should be applied correctly, per ANSI Z535.1 and the table on the following page. This symbol/pictorial panel contains one or more symbol/pictorials, which should be readily understood, and effectively communicate the message.

Recommended Safety Symbols and Common Pictorials

Recommended symbols and corresponding definitions are provided in the table below.

HAZARD	AVOIDANCE (Prohibited / Mandatory Action)	
THIS SYMBOL INDICATES A *HAZARD ALERT*	**THIS SYMBOL (Red) INDICATES** *PROHIBITED ACTION (Diagonal from left to right)*	**THIS (Blue) SYMBOL INDICATES** *MANDATORY ACTION*
SYMBOL COLORS: **RED** background- **DANGER** **ORANGE** background- **WARNING** **YELLOW** background- **CAUTION**	**Do not overtorque, no pipes or lever extensions.**	**Mandatory ear protection.**
	No hammering.	**Mandatory face shield.**
Vibration hazard.	**No prying.**	**Mandatory mask.**
Risk of explosion.	**Do not strike hard objects.**	**Mandatory respirator.**
Overhead/ overload hazard.	**No impact/power drive.**	**Mandatory protective clothing.**
Risk of electric shock.	**Do not step in or on drawers.**	**Mandatory protective gloves.**
Risk of fire.	**Do not open multiple drawers.**	**Mandatory eye protection.**
Risk of entanglement.	**Do not pull to move.**	**Read instructions before use.**
Cutting hazard	**Keep children away.**	

Other pictorials may be used. Preferably, use a pictorial from an existing industry standard that corresponds to your message. If there is none that is applicable, use an existing symbol considered standard practice in the industry. If no existing pictorial applies, develop a new pictorial using ANSI Z535.3 (Criteria for Safety Symbols).

SAFETY MESSAGE EXAMPLES: Preferred and Not Preferred

Following are examples of **Preferred** safety messages and **Not Preferred** safety messages to help you develop your own. **Preferred Safety Messages** examples and **Not Preferred Safety Messages** examples are shown. Use as a safety message reference for those or similar products. These examples are not inclusive and the discussions after each **Not Preferred Message** may not itemize every discrepancy. Contact your safety representative to review and make suggestions for new safety messages. The first **Preferred Message** example itemizes four possible preferred safety message versions; other **Preferred Message** examples show only the color ANSI Z535 style version.

EXAMPLE 1, PRODUCT TYPE: AVR TESTER

FOUR (4) EXAMPLES OF PREFERRED SAFETY MESSAGE

1) ANSI Z535.4 STYLE (COLOR EXAMPLE)

⚠ WARNING

Electrical equipment or rotating engine can cause flying particles.
Wear safety goggles (user and bystanders).
Flying particles can cause injury.

Batteries produce explosive gases and can explode.
Wear safety goggles (user and bystanders).
Keep flames and sparks away from batteries.
Read and follow instructions.
Battery explosion and ignited gases can cause injury.

2) ALTERNATE STYLE (COLOR EXAMPLE)

WARNING

Electrical equipment or rotating engine can cause flying particles.
Wear safety goggles (user and bystanders).
Flying particles can cause injury.

Batteries produce explosive gases and can explode.
Wear safety goggles (user and bystanders).
Keep flames and sparks away from batteries.
Read and follow instructions.
Battery explosion and ignited gases can cause injury.

3) ANSI Z535.4 STYLE (BLACK & WHITE EXAMPLE)

⚠WARNING

Electrical equipment or rotating engine can cause flying particles.
Wear safety goggles (user and bystanders).
Flying particles can cause injury.

Batteries produce explosive gases and can explode.

Wear safety goggles (user and bystanders).
Keep flames and sparks away from batteries.
Read and follow instructions.

Battery explosion and ignited gases can cause injury.

4) ALTERNATE STYLE (BLACK & WHITE EXAMPLE)

WARNING

Electrical equipment or rotating engine can cause flying particles.
Wear safety goggles (user and bystanders).
Flying particles can cause injury.

Batteries produce explosive gases and can explode.

Wear safety goggles (user and bystanders).
Keep flames and sparks away from batteries.
Read and follow instructions.

Battery explosion and ignited gases can cause injury.

NOT PREFERRED SAFETY MESSAGE

NOTE: It is recommended that user wear eye protection in case of flying particles or battery explosion. Do not smoke or use smoking materials near the battery while testing with this product. Read all enclosures before proceeding with use.

Discussion: The NOT PREFERRED safety message. It contains no clear signal word and is unclear how to avoid hazard(s) and consequences. An incorrect font is used. The message uses no pictorials.

EXAMPLE 2, PRODUCT TYPE: WELDERS, CUTTERS

PREFERRED SAFETY MESSAGE

DANGER

Electric welding or plasma cutting cause ultraviolet rays and weld spatter. Bystanders will be exposed to ultraviolet rays and weld spatter.

Wear welding helmet with appropriate shade lens while using electric welders or plasma cutters. (user and bystanders)

Do not allow bystanders while welding or cutting.

Wear protective clothing.

Ultraviolet rays will burn eyes; weld spatter can cause injury.

NOT PREFERRED SAFETY MESSAGE

WARNING: Wear eye and hand protection while welding. Welding process can produce spatter while may burn or injure you. A weld shield is recommended. Don't allow others to come too close to you while you are welding.

Discussion: The NOT PREFERRED safety message uses the incorrect signal word! The message is too wordy. It is unclear how to avoid hazard(s) and consequences. An incorrect font is used. The message uses no pictorials.

EXAMPLE 3, PRODUCT TYPE: HAND TOOLS, GENERAL

PREFERRED SAFETY MESSAGE

WARNING

Chrome and industrial finish hand tools can break if overloaded or used for the wrong application.

Wear safety goggles (user and bystanders).

Do not use chrome or industrial finish hand tools with power drivers.

Use only impact sockets and accessories with impact wrenches.

Use only power sockets and accessories with power wrenches.

Broken hand tools, sockets or accessories can cause injury.

NOT PREFERRED SAFETY MESSAGE

Tools that are not maintained properly may not perform correctly and may slip or break during use and create an unsafe condition. Be careful.

Discussion: The NOT PREFERRED safety message is too wordy. It contains no clear signal word and is unclear how to avoid hazard(s) and consequences. The message uses incorrect font style and size and no pictorials. "Be careful" is too vague.

EXAMPLE 4, PRODUCT TYPE: PULLERS

PREFERRED SAFETY MESSAGE

⚠ WARNING

Puller parts under stress can break.

Wear safety goggles (user and bystanders).

Do not heat pullers.

Do not overstress pullers. Use larger size.

Be aware of hand positions when using slide hammers.

Read and follow instructions.

Broken parts can cause injury.

NOT PREFERRED SAFETY MESSAGE

USE THIS TOOL SAFELY! Use the correct size tool for your job! Wear your safety glasses when you use a puller. Only safe use will protect you from hurting yourself or someone else.

Discussion: The NOT PREFERRED safety message It contains no signal word and some methods to avoid hazard(s) are missed. An incorrect font style, size and usage are used. States safety glasses instead of goggles. The message uses no pictorials.

EXAMPLE 5, PRODUCT TYPE: SCRAPERS

PREFERRED SAFETY MESSAGE

⚠ CAUTION

Scrapers and putty knives can break if used for prying or chiseling.

Wear safety goggles (user and bystanders).

Do not use scraper or putty knife as a prybar or chisel.

Broken tools can cause injury.

NOT PREFERRED SAFETY MESSAGE

WARNING: Use this scraper as a scraper! It is not intended for use as a prybar, chisel or pick! It can break if used incorrectly!

Discussion: The NOT PREFERRED safety message uses an incorrect signal word. The safety message is too wordy. It is unclear how to avoid hazard(s) and consequences. The message uses no pictorials.

EXAMPLE 6, PRODUCT TYPE: PLIERS/CUTTERS

PREFERRED SAFETY MESSAGE

⚠ WARNING

Broken tips or cut material can fly.
Wear safety goggles (user and bystanders).
Flying material can cause injury.

Risk of electrical shock.
Do not use on live electrical circuits. Plastic coated handles do not protect from electrical shock.
Electrical shock can cause injury.

NOT PREFERRED SAFETY MESSAGE

PLEASE READ THIS WARNING! It is recommended that user wear eye protection when cutter is used.

Discussion: The NOT PREFERRED safety message uses an unclear signal word. The safety message is too wordy. Action is "recommended" not mandatory. The message uses no pictorials. An incorrect font style is used.

EXAMPLE 7, PRODUCT TYPE: GRINDERS, GRINDING WHEELS, POWER TOOL ACCESSORIES (Drill Bits, Wire Brushes, Grinding Burrs, Abrasive Wheels, Grinding Wheels, Valve Grinders, Valve Grinding Wheels)

PREFERRED SAFETY MESSAGE

⚠ WARNING

Using damaged and incorrect grinding accessories can cause flying particles.
Wear safety goggles (user and bystanders).
Do not use chipped, cracked, damaged or unbalanced grinding accessories.
Use accessories rated at tool RPM or higher
Securely tighten accessories onto the spindle before operating the grinder.
Operate the grinder with accessories pointing away from your body.
Use of guard is required.
Flying particles can cause injury.

Force on the side of grinding wheels or discs can break them.
Do not grind on the side of a grinding wheel or disc.
Broken grinding wheel or disc can cause injury.

NOT PREFERRED SAFETY MESSAGE

Power Tools may be dangerous. Use them correctly and safely. Protect your eyes during use.

Discussion: The NOT PREFERRED safety message uses an unclear signal word. The safety message is vague and incomplete. "Use safely" is too vague. It is unclear how to avoid hazard(s) and consequences. The message uses the incorrect font style and no pictorials.

APPENDIX A: HOW TO OBTAIN INDUSTRY STANDARDS

Common industry standards related to product design and safety are available from the following organizations. This is not a comprehensive listing. In addition to the address and telephone number listed here, many standards organizations have an internet site that allows on-line ordering and/or a fax number for rapid order placement after an account is established.

STANDARDS CATEGORY/ORGANIZATION	OBTAIN FROM:
ANSI/ American National Standards Institute	ANSI, Global
ASME/ The American Society of Mechanical Engineers	ASME, Global
CAGI/ Compressed Air & Gas Institute	Global
CSA/ Canadian Standards Association	CSA, Global
GGG/ Department of Defense	Dept. of Defense(DoD), Global
HTI/ Hand Tool Institute	ANSI, Global
ISO/ International Organization for Standardization	ANSI, Global
NEMA/ National Electrical Manufacturers Association	ANSI, Global
SAE/ Society of Automotive Engineers	SAE, Global
UL/ Underwriters Laboratories Inc.	Global

CATALOGS & ORDERING INFORMATION AVAILABLE FROM:

American National Standards Institute
11 West 42nd Street
New York, NY 10036 USA
(212) 642-4900

American Society of Mechanical Engineers
22 Law Drive, Box 2900
Fairfield, New Jersey 07007-2900 USA
1-800-843-2763

Global Engineering Documents™
An IHS GROUP Company
15 Inverness Way East
Englewood, CO 80112-5776 USA
1-800-854-7179

Society of Automotive Engineers
400 Commonwealth Drive
Warrendale, PA15096-0001 USA
(412) 776-0790

Canadian Standards Association
178 Rexdale Blvd.
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APPENDIX B: INDUSTRY STANDARDS LISTING

The following are examples of common industry standards related to product design and safety listed alphabetically by *subject* and title for ease of reference. This is not an inclusive list. The standards body (see **APPENDIX A**) can verify the current revision of the document.

SUBJECT / TITLE	STANDARD
- A -	
Accident Prevention Tags (for Temporary Hazards)	(NEMA) ANSI Z535.5
Adjustable Wrenches	ASME B107.8M
Attachment, Handles and Attachments for Hand Socket Wrenches - Inch and Metric Series	ASME B107.10M
Automotive Lifts - Safety Requirements for the Construction, Care, and Use	ANSI B153.1
Axe, Hand Tools - Axes - Safety Requirements	ANSI B173.4
- B -	
Battery Charger, Standard for Battery Chargers for Charging Engine-Starter Batteries	UL 1236
Battery Operated, Standard for Particular Requirements for Battery-Operated Drills (CSA CAN/CSA-C22.2 No. 745-4-1)	UL 745-4-1
Battery Powered Tool, Standard for Portable Battery Operated Tools (CAN/CSA-C22.2 No. 745-3)	UL 745-3
Battery-Operated Screwdriver, Standard for Particular requirements for battery-Operated Screwdrivers and Impact Wrenches (CSA CAN/CSA-C22.2 No. 745-4-2)	UL 745-4-2
Bit, Screwdriver (and Adapter, Screwdriver Bit)	GSA GGG-B-001222
Bit, Screwdriver, (Tapered Square Shank, Flat Tip and Cross Tip)	GSA GGG-B-376B
- C -	
Chisel, Hand Tools – Brick Chisels and Brick Sets – Safety Requirements	ANSI B209.5
Chisel, Hand Tools – Glaziers' Chisels and Wood Chisels - Safety Requirements	ANSI B209.6
Chisel, Hand Tools Metal Chisels - Safety Requirements	ANSI B209.1
Chisel, Hand Tools - Ripping Chisels and Flooring/Electricians' Chisels - Safety Requirements	ANSI B209.7
Chisels, Hand: Cape, Diamond Point, Cold, Round Nose, and Side Cutting	GSA GGG-C-313D
Color, Safety Color Code	(NEMA) ANSI Z535.1
Criteria for Safety Symbols	(NEMA) ANSI Z535.3
Crowfoot Attachment, Socket Wrench	GSA GGG-C-001507B
- D -	
Drill, Hand Tools - Star Drills - Safety Requirements	ANSI B209.8
Drill, Twist (Taper-Square, Straight and Taper-Round Shanks)	GSA GGG-W-751D
Drills, Twist (Taper-Square, Straight and Taper-Round Shanks)	GSA GGG-D-751D

- E -

Electronic Cutters and Pliers	ASME B107.22M
Electronic Pliers	ASME B107.38M
Environmental and Facility Safety Signs	(NEMA) ANSI Z535.2
Extractor, Hand Tools - Stud, Screw, and Pipe Extractors - Safety Requirements	ANSI B209.10
Eye Protectors, Practice for Occupational and Educational Eye and Face Protection	ANSI Z87.1

- F -

Flat Tip and Phillips Screwdrivers	ASME B107.15

- G -

Garage Equipment, Standard for Garage Equipment	UL 201
Grinding Wheel, Safety Requirements for the Use, Care and Protection of Abrasive Wheels	ANSI B7.1

- H -

Hammer, Hand Tools - Ball Peen Hammers - Safety Requirements	ANSI B173.2
Hammer, Hand Tools - Body Repair Hammers and Dolly Blocks - Safety Requirements	ANSI B173.5
Hammer, Hand Tools – Bricklayers' Hammers and Prospecting Picks - Safety Requirements	ANSI B173.6
Hammer, Hand Tools - Nail Hammers - Safety Requirements	ANSI B173.1
Hammer, Hand Tools - Riveting, Scaling, and Tinners' Setting Hammers - Safety Requirements	ANSI B173.8
Hammer, Hand, (Body and Fender, Forged Steel Head)	GSA GGG-H-20A
Hammers, Hand & Mallets, Surface Protective; Holders and Adapters, Inserted Hammer Face, and Faces, Hammer, Inserted	GSA GGG-H-33B
Hand Torque Tools	ASME B107.14M
Handles and Attachments for Hand Socket Wrenches - Inch and Metric Series	ASME B107.10M
Hatchet, Hand Tools – Hatchets - Safety Requirements	ANSI B173.7
Heaters Electric, Standard for Safety Electric Heating Appliances	UL 499

- L -

Label, Product Safety Signs and Labels	(NEMA) ANSI Z535.4
Lamp, Standard for Portable Electric Hand Lamps	UL 298

- N -

Nail Puller Bar, Hand Tools - Nail-Puller Bars - Safety Requirements	ANSI B209.9
Nail Set, Hand Tools - Nail Sets - Safety Requirements	ANSI B209.4
Nut Drivers (Spin Type, Screwdriver Grip)(Inch Series)	ASME B107.12
Nut Drivers (Spin Type, Screwdriver Grip)(Metric Series)	ASME B107.35M

- P -

Pliers (Lineman's, Iron Worker's, Gas, Glass, and Fence)	ASME B107.20M
Pliers (Wire Twister)	ASME B107.18M
Pliers - Long Nose, Long Reach	ASME B107.13M
Pliers, Diagonal Cutting, and Nippers, End Cutting	ASME B107.11M
Pliers, Electronic Cutters and Pliers	ASME B107.22M
Pliers, Multiple Position (Electrical Connector)	ASME B107.27

- E -

Pliers, Multiple Position, Adjustable	ASME B107.23M
Pliers, Retaining Ring	ASME B107.19
Pneumatic Tool, Safety Code for Portable Air Tools	CAGI B186.1
Polymers, Standard for Polymeric Materials - Short Term Property Evaluations	UL 746A
Power systems, Standard for Relocatable Power Taps	UL 1363
Power Tool, Standard for Portable Electric Tools	UL 45
Power Unit, Standard for Class 2 Power Units	UL 1310
Power Unit, Standard for Power Units Other Than Class 2	UL 1012
Power-Driven Brushing Tools Safety Requirements for Design, Care and Use	ANSI B165.1
Practice for Occupational and Educational Eye and Face Protection	ANSI Z87.1
Product Safety Signs and Labels	(NEMA) ANSI Z535.4
Puller Kit, Mechanical	GSA GGG-P-643A
Punch, Hand Tools - Metal Punches and Drift Pins - Safety Requirements	HTI B209.2
Punches; Center, Drive Pin, Aligning, and Prick	GSA GGG-P-831F

- R -

Regulator, Standard for Compressed Gas Regulator Accessories	UL 252A

- S -

Safety Code for Portable Air Tools	CAGI B186.1
Safety Color Code	(NEMA) ANSI Z535.1
Safety colours and safety signs, Graphical symbols – Part 1: Design principles for safety signs in workplaces and public areas	ISO 3864-1
Safety Requirements for the Use, Care and Protection of Abrasive Wheels	ANSI B7.1
Screwdriver and Screw Starter, Hand	GSA GGG-S-121F
Screwdriver Bit, Bit, Screwdriver (and Adapter, Screwdriver Bit)	GSA GGG-B-001222
Screwdriver Bit, Bit, Screwdriver, (Tapered Square Shank, Flat Tip and Cross Tip)	GSA GGG-B-376B
Screwdriver, Cross Tip	ASME B107.30
Screwdriver, Flat Tip and Phillips Screwdrivers	ASME B107.15
Screwdriver, Ratchet, Right Angle Offset, Right and Left Hand Turning	GSA GGG-S-1408A
Shears (Metal Cutting, Bench and Hand)	ASME B107.16
Sign, Environmental and Facility Safety Signs	(NEMA) ANSI Z535.2
Sign, Product Safety Signs and Labels	(NEMA) ANSI Z535.4
Socket Wrenches, Extensions, Adaptors, and Universal Joints, Power Drive (Impact) (Inch Series)	ASME B107.2
Socket Wrenches, Hand (Inch Series)	ASME B107.1
Socket Wrenches, Hand (Metric Series)	ASME B107.5M
Socket Wrenches, Spark Plug	ASME B107.34M
Socket, Socket Wrench and Attachments (for Power Driven Impact Wrenches)	GSA GGG-W-660A
Standard for Particular Requirements for Battery-Operated Drills (CSA CAN/CSA-C22.2 No. 745-4-1)	UL 745-4-1
Standard for Battery Chargers for Charging Engine-Starter Batteries	UL 1236
Standard for Class 2 Power Units	UL 1310
Standard for Compressed Gas Regulator Accessories	UL 252A
Standard for Garage Equipment	UL 201

- E -	
Standard for Particular requirements for battery-Operated Screwdrivers and Impact Wrenches (CSA CAN/CSA-C22.2 No. 745-4-2)	UL 745-4-2
Standard for Polymeric Materials - Short Term Property Evaluations	UL 746A
Standard for Portable Battery Operated Tools (CAN/CSA-C22.2 No. 745-3)	UL 745-3
Standard for Portable Electric Hand Lamps	UL 298
Standard for Portable Electric Tools	UL 45
Standard for Power Units Other Than Class 2	UL 1012
Standard for Relocatable Power Taps	UL 1363
Standard for Safety Electric Heating Appliances	UL 499
Standard for Safety Television Receivers and High-Voltage Video Products	UL 1410
Striking Tool, Hand Tools - Heavy Striking Tools - Safety Requirements	ANSI B173.3
Stripper, Cable, Hand; and Stripper, Wire, Hand	GSA GGG-S-665C
Stud Remover and Setter	GSA GGG-S-775B
Symbol, Criteria for Safety Symbols	(NEMA) ANSI Z535.3
- T -	
Torque Wrench, Hand Torque Tools	ASME B107.14M
- V -	
Video Product, Standard for Safety Television Receivers and High-Voltage Video Products	UL 1410
- W -	
Wedge, Hand Tools - Wood Splitting Wedges - Safety Requirements	ANSI B209.3
Wrench, Adjustable Wrenches	ASME B107.8M
Wrench, Box (Ratcheting)	GSA GGG-W-001405
Wrench, Crowfoot Attachments	ASME B107.21
Wrenches	ASME B107.100

APPENDIX C: ISO SAFETY REQUIREMENTS

It is recognized that differences exist between ANSI (North America) and ISO (Europe) standards with regard to the shape and color of the safety alert symbol. Safety messages should be developed in conformance to the appropriate standards for the countries in which the product will be sold.

Safety Alert Symbol

The safety alert symbol, when used with the signal word, shall precede the signal word except on ISO safety messages. ISO safety messages do not include a safety alert symbol prior to the signal word.

Safety Alert Symbol (solid)
(ANSI Z535.4)

Safety Alert Symbol (outline)
(ISO 3864)

Safety Message Panel Layout and Colors

ISO safety messages make no distinction on the level of hazard seriousness in terms of use of a signal word. All messages use the signal word WARNING. ISO safety colors can be found in ISO 3864-1. The following examples show ISO safety message panel layout and color.

ISO Danger Safety Message Panel Colors

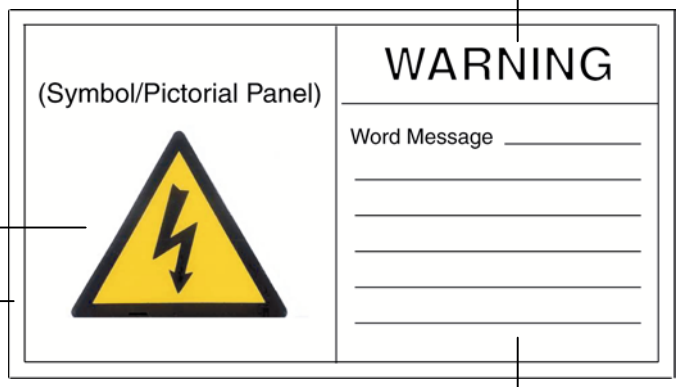
Signal Word- Black lettering on white background or black lettering on yellow background

Panel Background – All panels white or yellow background

Symbol/Pictorial- Black triangle outline with black hazard symbol on yellow background.

Border- The border should be white or match the background color of the word message.

Word Message- Black lettering on white background or black lettering on yellow background



ISO Warning Safety Message Panel Colors

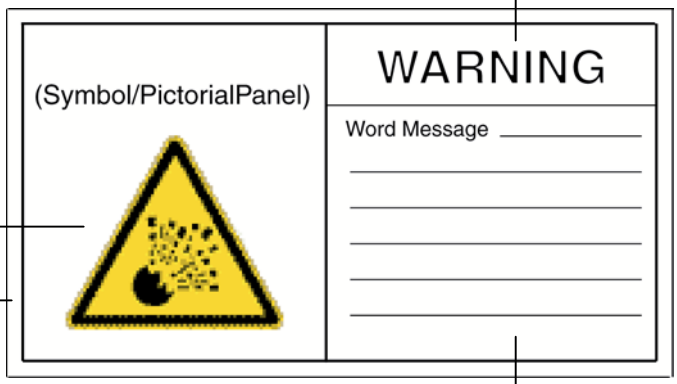
Signal Word- Black lettering on white background or black lettering on yellow background

Panel Background – All panels white or yellow background

Symbol/Pictorial- Black triangle outline with black hazard symbol on yellow background.

Border- The border should be white or match the background color of the word message.

Word Message- Black lettering on white background or black lettering on yellow background



ISO Caution Safety Message Panel Colors

Signal Word- Black lettering on white background or black lettering on yellow background

Panel Background – All panels white or yellow background

Symbol/Pictorial- Black triangle outline with black hazard symbol on yellow background.

Border- The border should be white or match the background color of the word message.

Word Message- Black lettering on white background or black lettering on yellow background